Portland Dispatch Center Consortium CAD Integration Project

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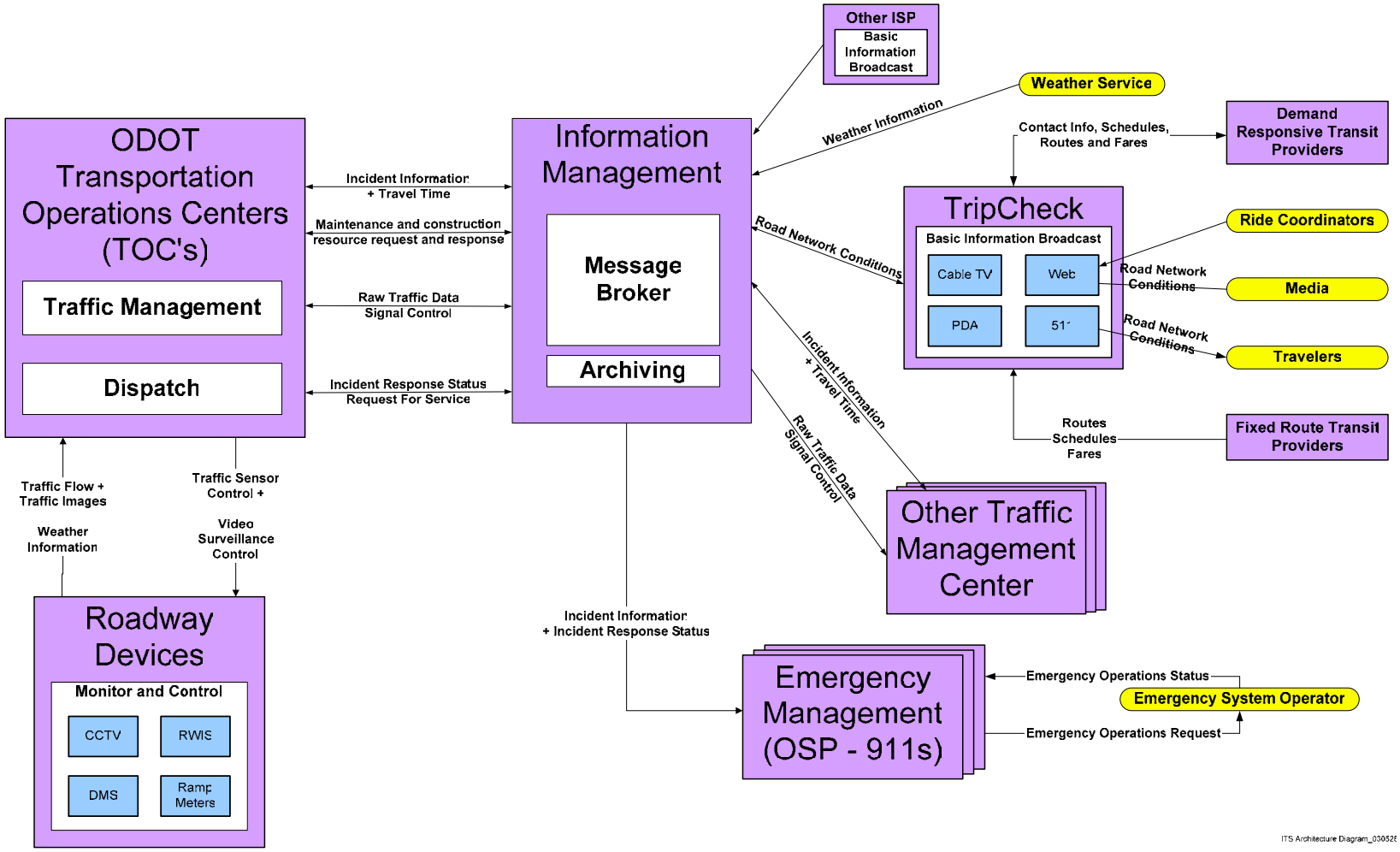
Overview

- ODOT $400,000 homeland security grant to integrate ODOT, OSP, BOEC, and WCCCA
- PDCC $700,000 urban area security initiative grant to integrate 7 Portland metro area CAD systems
- Exchange of incident information and call for service



ITS Architecture Diagram

Agencies Involved

- Oregon DOT
- City of Portland, BOEC
- Clackamas Co, CCOM
- Washington Co, WCCCA
- Lake Oswego, LOCOM
- Oregon State Police
- Clark Regional Emergency Services Agency, CRESA
- Airport Communications Center, ACC
- Columbia 911 Communications District, C911

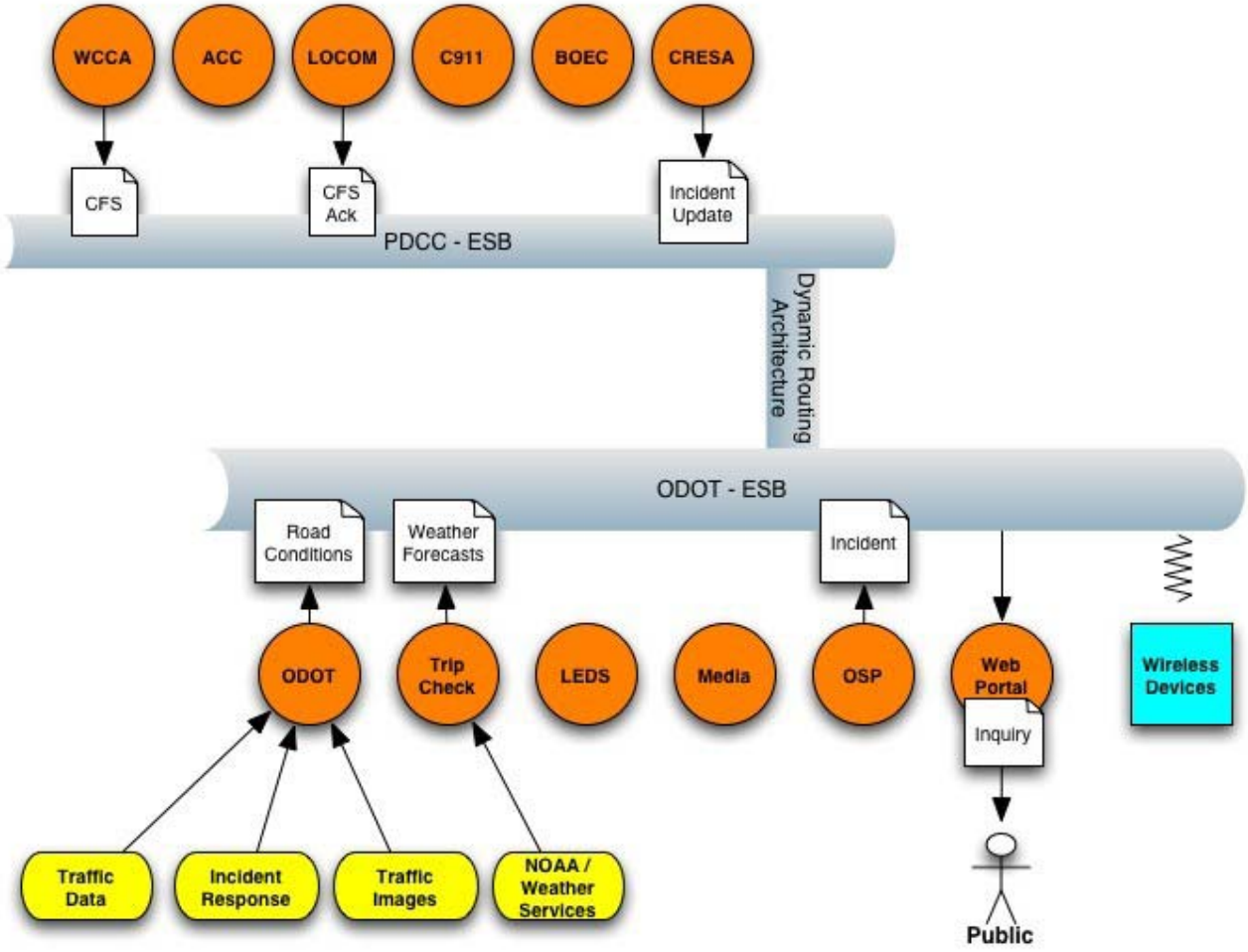
System Objectives

- Interoperability – Open System
  - Heterogeneous CAD applications and hosting environments
  - Loosely-Coupled / Top-Down approach
  - Standards-based Common Data Format for XML Schema
  - WS-I basic profile for WSDL and SOAP messages
- Quality of Service
  - Message Reliability
  - Security (Authentication / Authorization / Encryption)
  - Scalability
- Performance
  - Throughput vs Latency
- Manageability
  - Audit and Log
  - Monitoring and Diagnostics
  - SLAs and Policy Management

Initial Project Scope

- ⇨ Provide PDCC Integration Technology Foundation
- ⇨ Transfer of incidents
- ⇨ Call for Service
- ⇨ Implement State Highway Incident Information Exchange
- ⇨ Implement ODOT Road Condition Information Exchange

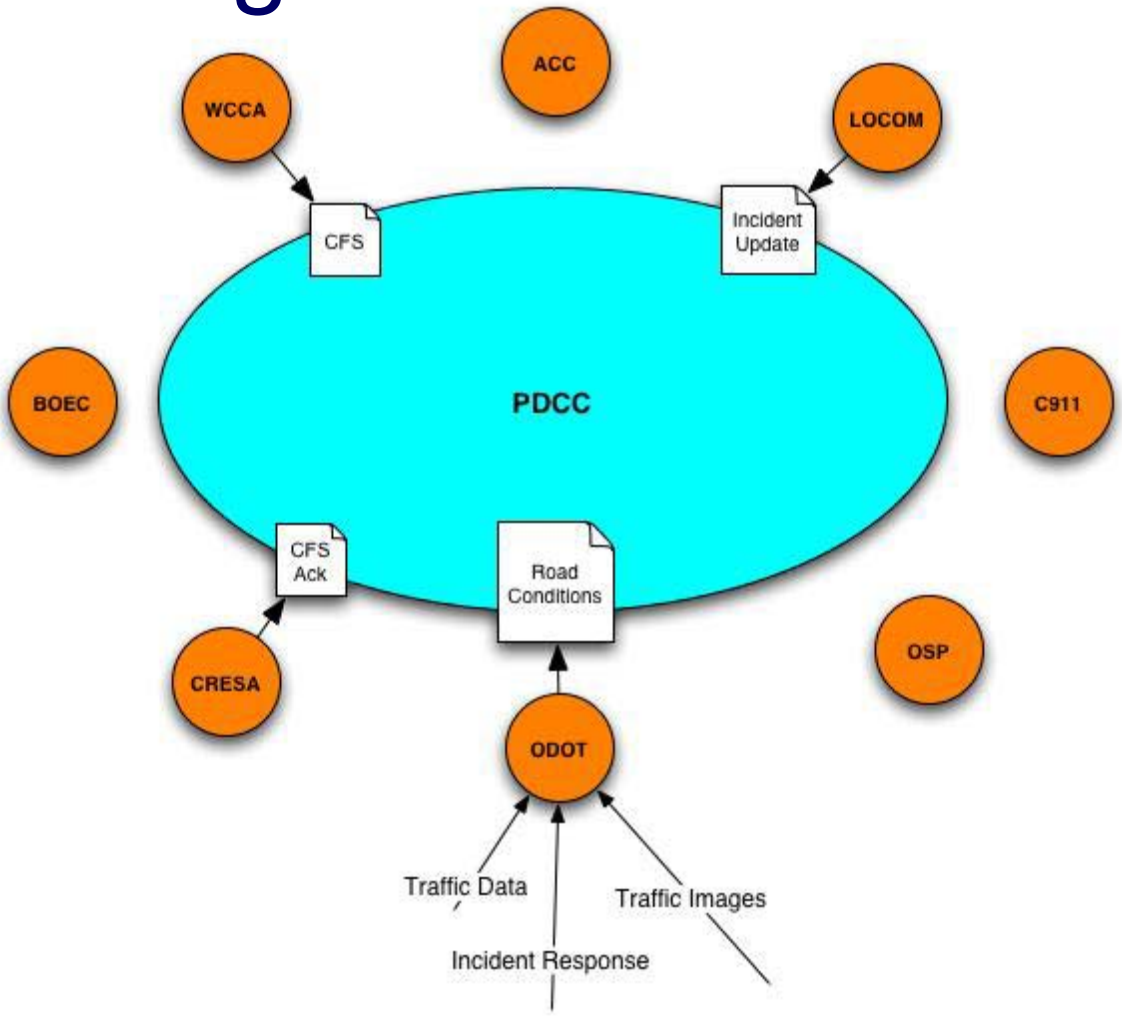
ODOT Concept



RFP Results

- Online Business Systems
- Other related projects:
  - City of Seattle, SeaJIS Project
  - State of Washington, Justice Information Network
- Technology
  - Sonic Software, Enterprise Service Bus

Logical Architecture



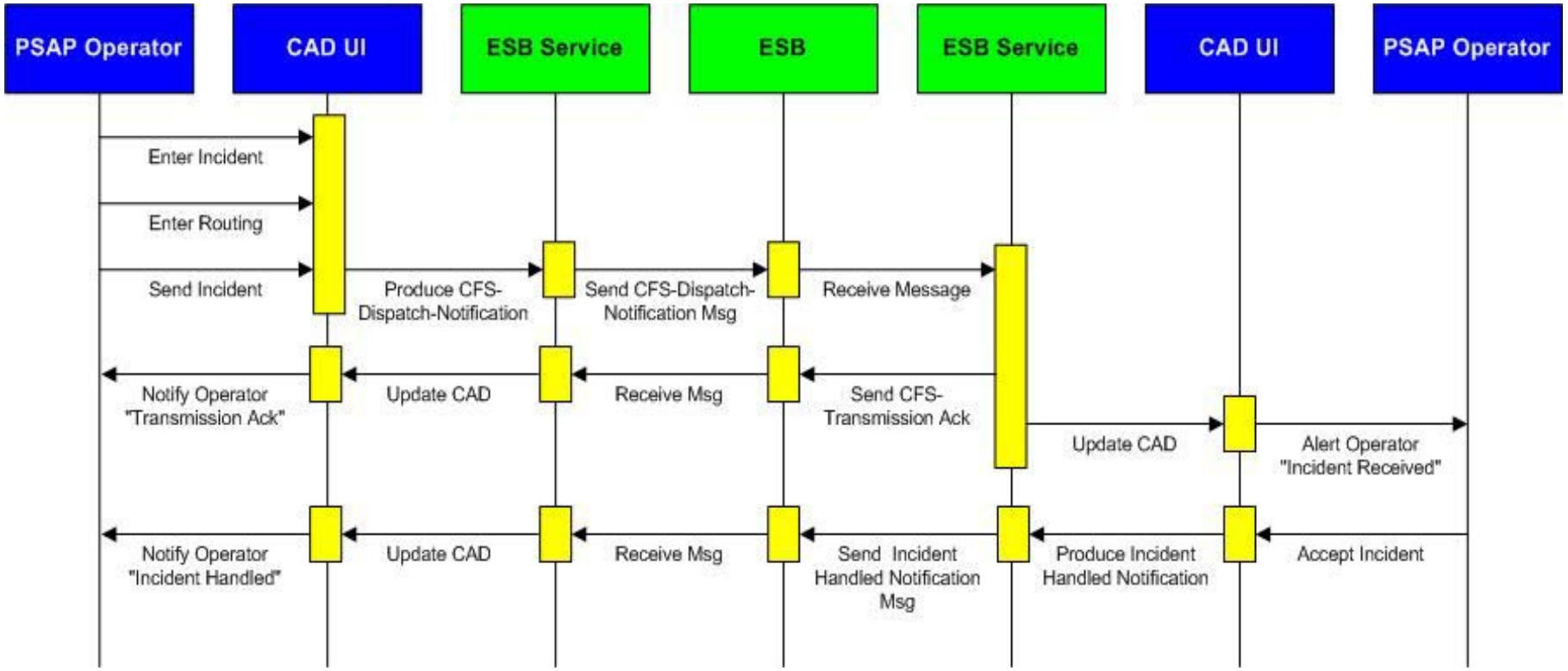
Service-Oriented Architecture

Web Services

XML

Enterprise Service Bus

Message Sequence



Approach - SOA and ESB

- SOA & Integration
  - standards-guided service-based integration design approach and software infrastructure implementation
- Service
  - Performs complete parcel of work
  - Does not require knowledge of underlying technology
  - Does not depend on context of state of other services
  - Decompose business procedures into discrete and abstracted components with an eye towards interoperability and reusability
- Standards
  - Web Service standards for Interoperability, QoS, Manage-ability, and Performance
  - XML and Industry Standards (IEEE, GJXDM, …) for data representation and usage guidelines
- Enterprise Service Bus Technology

Enterprise Service Bus

"…software infrastructure that enables SOA by acting as an **intermediary** layer of middleware through which a set of reusable business services are made widely available. An ESB helps enterprises obtain the value of SOA by increasing **connectivity**, adding **flexibility** that speeds change, and providing greater **control** over use of the important resources it binds."

Forrester / Mike Gilpin

ESB Functions

- Mediation
  - Requester acts indirectly and ESB handles details of invocation and routing – results in reusability, simplicity, maintainability
- Connectivity
  - ESB responsible for a broad range of connection capability (Web service stack, MOM, .Net service components, Java RMI, CORBA, …)
- Flexibility for Change
  - ESB is configured with metadata for routing, QoS, orchestration, security, transformation, business rules, …
- Control (Policy and Governance)
  - IT and business polices (e.g. security and management) enforced on the bus

ESB Characteristics

- **100% Standards-Based** (JMS, XML, JCA, SOAP, XSLT, UDDI…)
- **Highly Secure** (Plug-able Security and Cipher Suites)
- **Message Reliability** (Guaranteed Once-Only Delivery)
- **High Performance**
- **Incremental Adoption** (Project → Enterprise → Partner)
- **Dynamic Deployment**
- **Scalable** (Distributed Clustering Architecture)
- **Enterprise Management** (Metadata Configuration, Central Administration, Federated Support)

- Standards-Based Support for:
  - Firewall, Internal/External Security, Encryption, Transformation Tools, Web Services
- Pre-Built Adaptors

Questions?